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**James R Henderson\*** (jrh66@psu.edu). *Strange Bedfellows: Thomae's Game Formalism and Developmental Algebra.*

In a developmental math class, learning about manipulating mathematical entities can sometimes grind to a halt when questions about the entities themselves arise. This usually doesn't happen with, say, whole numbers because students can understand them in terms of a simplistic Platonism. Trying to bring these students around to a different way of thinking may be a case of fixing something that isn't broken. But consider, as a single example, when imaginary numbers are introduced. What is a beginner to make of a number that is neither positive, nor negative, nor zero, and when squared produces a negative? Since, to the uninitiated, imaginary numbers are mysterious in a way that whole numbers are not, I ask my students to adopt a formalist approach like that of Johannes Thomae in which math is purely a game with specific rules of play and the background assumption that no mathematical symbol has any meaning outside the game. In particular,  $i$  has no meaning, so the job is not to understand it. Rather, the job is to eliminate higher powers of  $i$  and square roots of negatives, and it can all be done with techniques familiar to the students. In this way, the puzzling nature of imaginaries never comes into play and new problems are reduced to old ones. (Received August 11, 2015)